Maximum Ratings (@ T_A = 25°C unless otherwise specified)

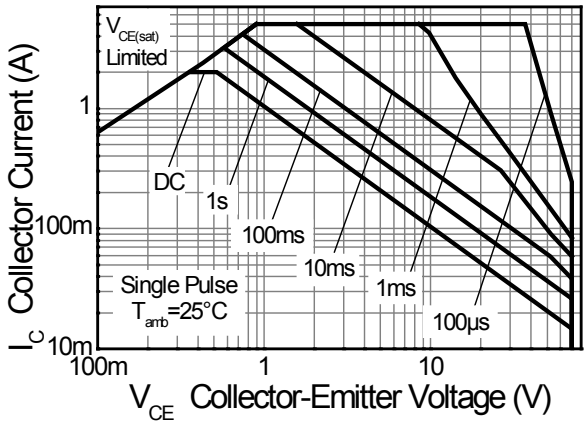
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	70	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	2	A
Peak Pulse Collector Current (single pulse)	I_{CM}	5	A
Base Current	I_B	500	mA

Thermal Characteristics (@ T_A = +25°C unless otherwise specified.)

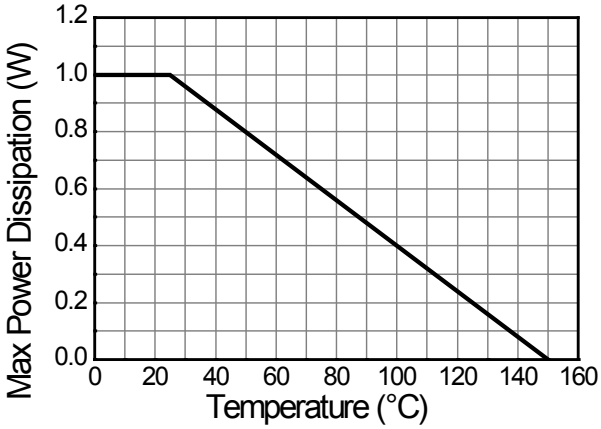
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	0.6	W
Total Power Dissipation (Note 6)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	208	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	121	°C/W
Thermal Resistance, Junction to Lead (Note 7)	$R_{\theta JL}$	37	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 5. For a device surface mounted minimum recommended pad layout, in still air conditions
6. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
7. Thermal resistance from junction to solder-point (at the end of the collector lead).

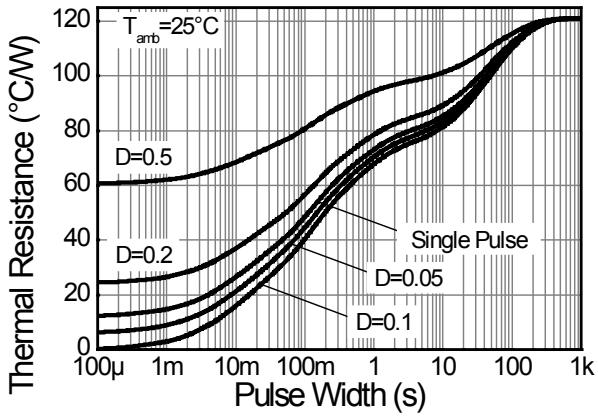
Thermal Characteristics and Derating Information



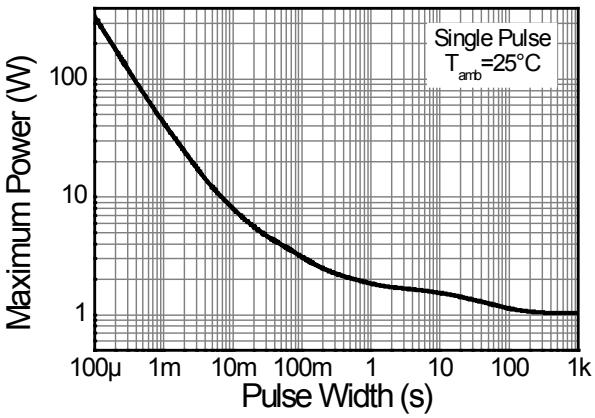
Safe Operating Area



Derating Curve



Transient Thermal Impedance



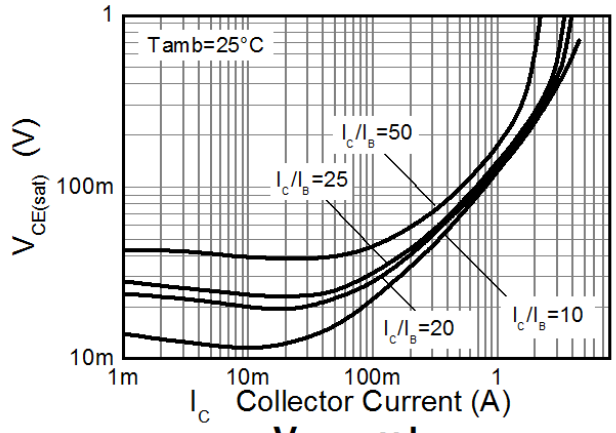
Pulse Power Dissipation

Electrical Characteristics @ T_A = 25°C unless otherwise specified

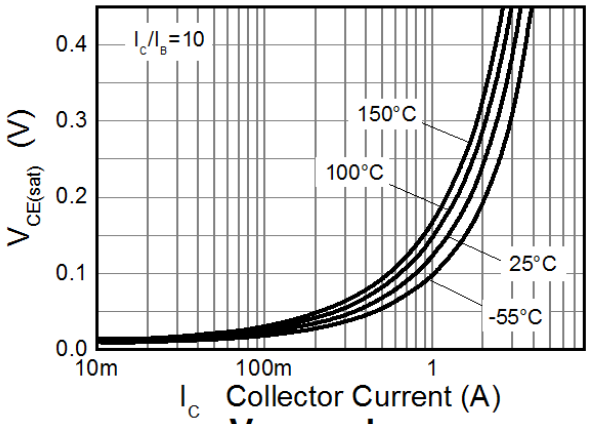
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	150	190	–	V	I_C = 100µA
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	70	80	–	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.3	–	V	I_E = 100µA
Collector-Base Cut Off Current	I_{CBO}	–	–	100	nA	V_{CB} = 60V , V_{CES} = 60V
Collector-Emitter Cut Off Current	I_{CES}	–	–	100	nA	V_{CB} = 60V , V_{CES} = 60V
Emitter Cut Off Current	I_{EBO}	–	–	100	nA	V_{EB} = 5.6V
ON CHARACTERISTICS (Note 8)						
DC Current Gain	h_{FE}	190 200 75	320 340 110	– – –	–	I_C = 10mA, V_{CE} = 5V I_C = 100mA, V_{CE} = 5V I_C = 2A, V_{CE} = 5V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	– – – – –	22 110 147 135 265	30 150 200 165 330	mV	I_C = 0.1A, I_B = 10mA I_C = 0.5A, I_B = 10mA I_C = 1A, I_B = 50mA I_C = 1A, I_B = 100mA I_C = 2A, I_B = 200mA
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	–	0.85	1.0	V	I_C = 1A, V_{CE} = 2V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	–	0.90	1.1	V	I_C = 1A, I_B = 50mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	–	10	–	pF	V_{CB} = 10V. f = 1MHz
Transition frequency	f_T	–	200	–	MHz	V_{CE} = 10V, I_C = 50mA, f = 100MHz
SWITCHING CHARACTERISTICS						
Turn-On Time	t_{on}	–	46	–	ns	V_{CE} = 10V, I_C = 0.5A
Turn-Off Time	t_{off}	–	722	–	ns	I_{B1} = -I_{B2} = 25mA

Note: 8. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%

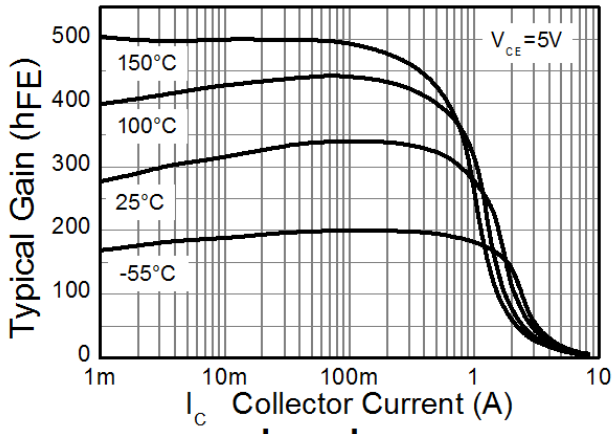
Typical Characteristics



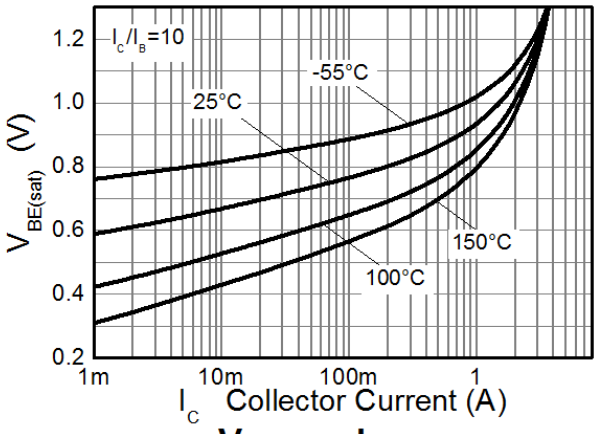
$V_{CE(sat)}$ v I_C



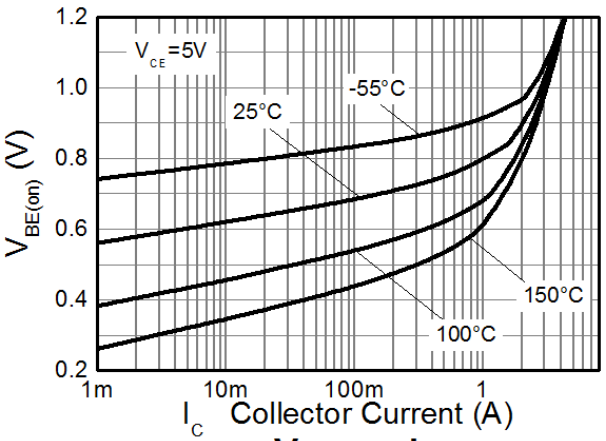
$V_{CE(sat)}$ v I_C



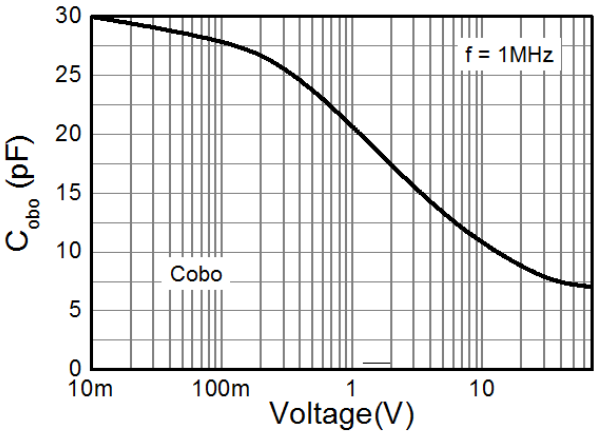
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C

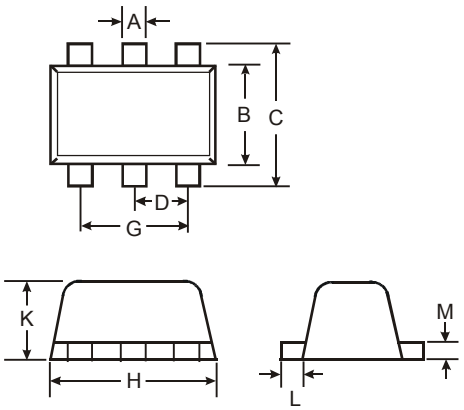


C_{obo} v V

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT666

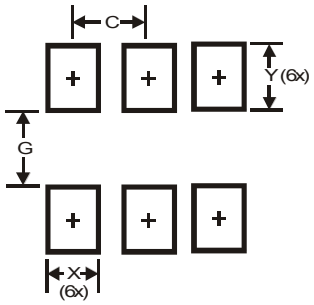


SOT666			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	0.50	-
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.15
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT666



Dimensions	Value (in mm)
C	0.50
G	0.80
X	0.35
Y	0.50

Note: The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application. These dimensions may be modified based on user equipment capability or fabrication criteria. A more robust pattern may be desired for wave soldering and is calculated by adding 0.2 mm to the 'Z' dimension. For further information, please reference document IPC-7351A, Naming Convention for Standard SMT Land Patterns, and for International grid details, please see document IEC, Publication 97.

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

IMPORTANT NOTICE

1. DIODES INCORPORATED AND ITS SUBSIDIARIES ("DIODES") MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

2. The Information contained herein is for informational purpose only and is provided only to illustrate the operation of Diodes products described herein and application examples. Diodes does not assume any liability arising out of the application or use of this document or any product described herein. This document is intended for skilled and technically trained engineering customers and users who design with Diodes products. Diodes products may be used to facilitate safety-related applications; however, in all instances customers and users are responsible for (a) selecting the appropriate Diodes products for their applications, (b) evaluating the suitability of the Diodes products for their intended applications, (c) ensuring their applications, which incorporate Diodes products, comply the applicable legal and regulatory requirements as well as safety and functional-safety related standards, and (d) ensuring they design with appropriate safeguards (including testing, validation, quality control techniques, redundancy, malfunction prevention, and appropriate treatment for aging degradation) to minimize the risks associated with their applications.

3. Diodes assumes no liability for any application-related information, support, assistance or feedback that may be provided by Diodes from time to time. Any customer or user of this document or products described herein will assume all risks and liabilities associated with such use, and will hold Diodes and all companies whose products are represented herein or on Diodes' websites, harmless against all damages and liabilities.

4. Products described herein may be covered by one or more United States, international or foreign patents and pending patent applications. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks and trademark applications. Diodes does not convey any license under any of its intellectual property rights or the rights of any third parties (including third parties whose products and services may be described in this document or on Diodes' website) under this document.

5. Diodes products are provided subject to Diodes' Standard Terms and Conditions of Sale (https://www.diodes.com/about/company/terms-and-conditions/terms-and-conditions-of-sales/) or other applicable terms. This document does not alter or expand the applicable warranties provided by Diodes. Diodes does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

6. Diodes products and technology may not be used for or incorporated into any products or systems whose manufacture, use or sale is prohibited under any applicable laws and regulations. Should customers or users use Diodes products in contravention of any applicable laws or regulations, or for any unintended or unauthorized application, customers and users will (a) be solely responsible for any damages, losses or penalties arising in connection therewith or as a result thereof, and (b) indemnify and hold Diodes and its representatives and agents harmless against any and all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim relating to any noncompliance with the applicable laws and regulations, as well as any unintended or unauthorized application.

7. While efforts have been made to ensure the information contained in this document is accurate, complete and current, it may contain technical inaccuracies, omissions and typographical errors. Diodes does not warrant that information contained in this document is error-free and Diodes is under no obligation to update or otherwise correct this information. Notwithstanding the foregoing, Diodes reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes.

8. Any unauthorized copying, modification, distribution, transmission, display or other use of this document (or any portion hereof) is prohibited. Diodes assumes no responsibility for any losses incurred by the customers or users or any third parties arising from any such unauthorized use.

www.diodes.com